R-XPT-II-A4 STAINLESS STEEL A4 THROUGHBOLT

Stainless steel throughbolt for non-cracked concrete

FEATURES AND BENEFITS

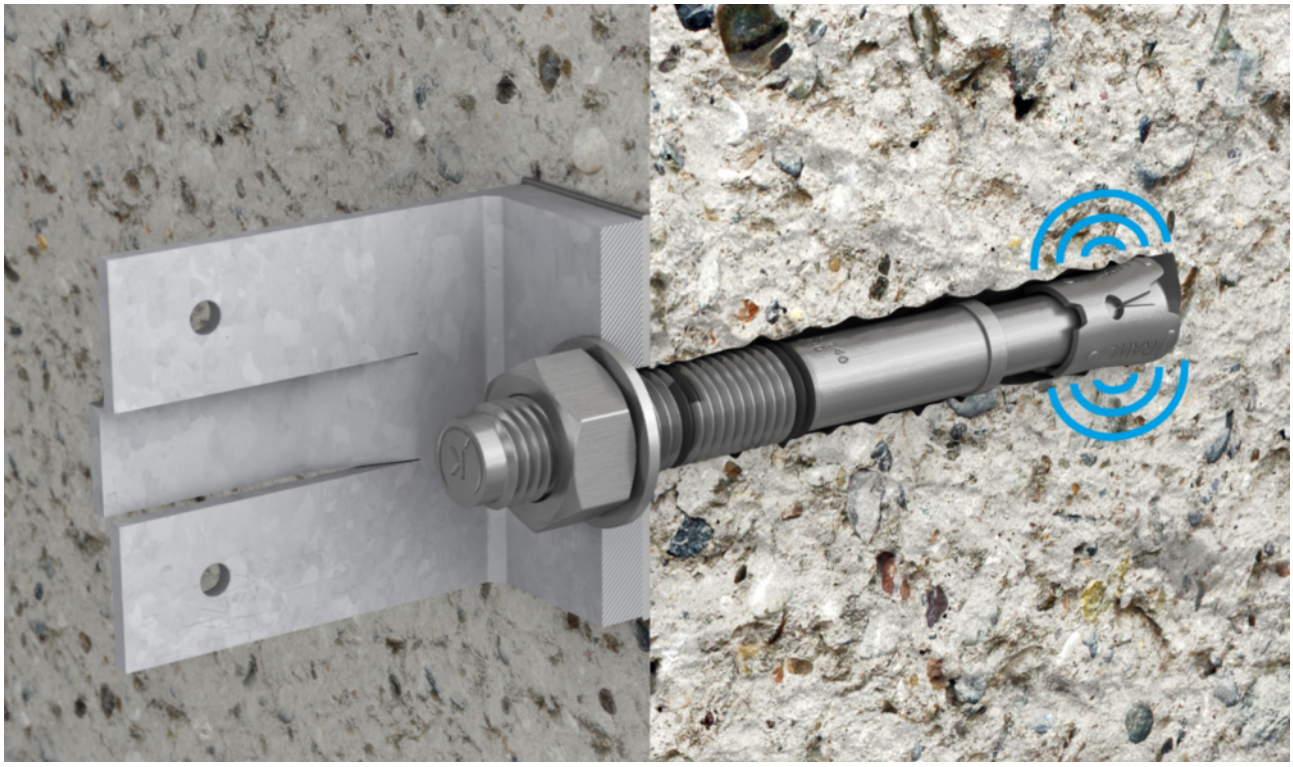
- Stainless steel anchor for the highest corrosion resistance.
- Highest quality ensures maximum load capability.
- Embedment depth markings help to ensure precise installation of the anchor.
- Simple through-installation (drilling and installation through fixed material).
- High performance in non-cracked concrete confirmed by ETA Option 7.
- Suitable for reduced embedment to avoid contact with reinforcement.

SUBSTRATES

- Non-cracked concrete C20/25-C50/60
- Unreinforced concrete
- Reinforced concrete
- High-density natural stone



R-XPT-II-A4 STAINLESS STEEL A4 THROUGHBOLT



APPLICATIONS

- Balustrades
- Handrails
- Poles and road signs
- Profiled and cover sheets
- Steel structures
- Storage racks
- Ventilated facades

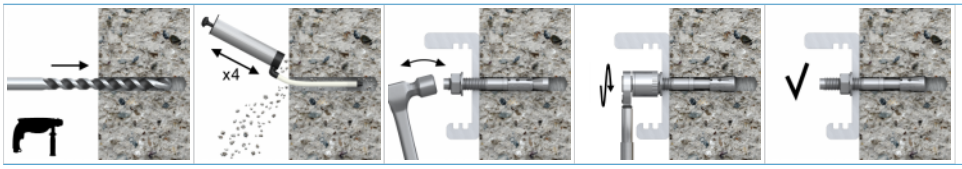




London, United Kingdom
Jubilee Line Extension, Waterloo Station

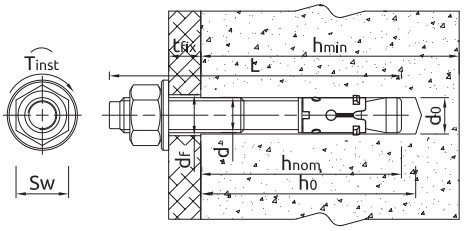
R-XPT-II-A4 STAINLESS STEEL A4 THROUGHBOLT

INSTALLATION GUIDE



1. Drill a hole of required diameter and depth.
2. Clear the hole of drilling dust and debris (using blowpump or equivalent method).
3. Lightly tap the anchor through the fixture into hole with hammer, until fixing depth is reached.
4. Insert bolt through fixture and tighten to the recommended torque.

INSTALLATION DATA



Size			M6	M8	M10	M12	M16	M20	M24
Thread diameter	d	[mm]	6	8	10	12	16	20	24
Hole diameter in substrate	d_0	[mm]	6	8	10	12	16	20	24
Hole diameter in fixture	d_f	[mm]	7	9	11	13	18	22	26
Installation torque	T_{inst}	[Nm]	5	15	30	50	100	150	230
Wrench size	Sw	[mm]	10	13	17	19	24	30	36
STANDARD EMBEDMENT DEPTH									
Min. hole depth in substrate	$h_{0,s}$	[mm]	55	65	79	90	110	140	155
Min. installation depth	$h_{nom,s}$	[mm]	50	55	69	80	100	120	135
Min. substrate thickness	$h_{min,s}$	[mm]	100	100	120	140	170	210	230
Min. edge distance	c_{min}	[mm]	50	50	60	85	90	160	200
For spacing distances	s ≥	[mm]	-	100	125	110	200	-	-
Min. spacing	s_{min}	[mm]	45	65	90	110	170	170	180
For edge distances	c ≥	[mm]	-	65	80	85	120	-	-
REDUCED EMBEDMENT DEPTH									
Min. hole depth in substrate	$h_{0,r}$	[mm]	40	50	59	70	90	120	140
Min. installation depth	$h_{nom,r}$	[mm]	30	40	49	60	80	100	120
Min. substrate thickness	$h_{min,r}$	[mm]	100	100	100	100	130	210	230
Min. edge distance	c_{min}	[mm]	45	50	80	100	120	125	160
For spacing distances	s ≥	[mm]	-	100	150	190	190	-	-
Min. spacing	s_{min}	[mm]	40	65	115	150	190	160	190
For edge distances	c ≥	[mm]	-	65	110	120	120	-	-

MECHANICAL PROPERTIES

Size			M6	M8	M10	M12	M16	M20	M24
Nominal ultimate tensile strength - tension	f_{uk}	[N/mm²]	800	600	600	550	550	500	500
Nominal yield strength	f_{yk}	[N/mm²]	600	480	480	440	440	210	210
Cross sectional area	A_s	[mm²]	14,2	25,5	40,7	60,1	106,6	162,9	234,5
Elastic section modulus	W_{el}	[mm³]	13,1	31,2	62,3	109,0	276,4	539,9	940,9
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	12,6	22,0	45,0	72,0	180,0	323,9	564,5
Design bending resistance	M	[Nm]	9,4	17,6	36,0	57,6	144,0	136,1	237,2

BASIC PERFORMANCE DATA

Performance data for single anchor without influence of edge distance and spacing

R-XPT-II-A4 STAINLESS STEEL A4 THROUGHBOLT

Size			M6	M8	M10	M12	M16	M20	M24
Standard embedment depth	h_{nom}	[mm]	50	55	69	80	100	120	135
Reduced embedment depth	h_{nom}	[mm]	30	40	49	60	80	100	120
MEAN ULTIMATE RESISTANCE									
TENSION LOAD $N_{Ru,m}$									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	9,75	11,70	20,80	32,50	50,12	26,00	32,50
Reduced embedment depth	-	[kN]	1,95	9,75	15,58	21,27	33,51	15,60	20,80
SHEAR LOAD $V_{Ru,m}$									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	8,84	12,87	20,35	27,06	49,94	67,38	97,08
Reduced embedment depth	-	[kN]	6,97	12,22	16,44	22,45	49,94	67,38	97,08
CHARACTERISTIC RESISTANCE									
TENSION LOAD N_{Rk}									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	7,50	9,00	16,00	25,00	38,55	20,00	25,00
Reduced embedment depth	-	[kN]	1,50	7,50	11,98	16,36	25,78	12,00	16,00
SHEAR LOAD V_{Rk}									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	8,04	11,70	18,50	24,60	45,40	61,25	88,25
Reduced embedment depth	-	[kN]	5,08	8,90	11,98	16,36	45,40	61,25	88,25
DESIGN RESISTANCE									
TENSION LOAD N_{Rd}									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	2,98	5,00	10,67	16,67	25,70	7,94	9,92
Reduced embedment depth	-	[kN]	0,60	4,17	6,66	10,91	17,19	4,76	6,35
SHEAR LOAD V_{Rd}									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	6,05	9,36	14,80	19,68	36,32	25,74	37,08
Reduced embedment depth	-	[kN]	3,38	5,94	7,99	10,91	34,37	25,74	37,08
RECOMMENDED LOAD									
TENSION LOAD N_{rec}									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	2,13	3,57	7,62	11,90	18,36	5,67	7,09
Reduced embedment depth	-	[kN]	0,43	2,98	4,75	7,79	12,28	3,40	4,54
SHEAR LOAD V_{rec}									
UNCRACKED CONCRETE									
Standard embedment depth	-	[kN]	4,32	6,69	10,57	14,06	25,94	18,38	26,49
Reduced embedment depth	-	[kN]	2,42	4,24	5,71	7,79	24,55	18,38	26,49

DESIGN PERFORMANCE DATA

Static loads

Size			M6	M6	M8	M8	M10	M10	M12	M12	M16	M16	M20	M20	M24	M24
Effective embedment depth	h_{ef}	[mm]	22	42	32	47	39	59	48	68	65	85	85	105	97	112
TENSION LOAD																
STEEL FAILURE																
Characteristic resistance	$N_{Rk,s}$	[kN]	11,83	11,83	21,2	21,2	33,6	33,6	44,8	44,8	82,6	82,6	114,03	114,03	164,16	164,16
Partial safety factor	γ_{MS}	[-]	1,6	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	2,86	2,86	2,86	2,86
PULL-OUT FAILURE																
Characteristic resistance in uncracked concrete C20/25	$N_{Rk,p,ucr}$	[kN]	1,5	7,5	7,5	9,0	12,0	16,0	-	25,0	-	-	12,0	20,0	16,0	25,0
Installation safety factor	γ_{inst}	[-]	1,68	1,68	1,2	1,2	1,2	1,0	1,0	1,0	1,0	1,0	1,68	1,68	1,68	1,68
Increasing factors for concrete C30/37	Ψ_c	[-]	1,22	1,22	1,17	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22
Increasing factors for concrete C40/50	Ψ_c	[-]	1,41	1,41	1,32	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41	1,41
Increasing factors for concrete C50/60	Ψ_c	[-]	1,55	1,55	1,42	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55	1,55
CONCRETE CONE FAILURE																
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0
Installation safety factor	γ_{inst}	[-]	1,68	1,68	1,2	1,2	1,2	1,0	1,0	1,0	1,0	1,0	1,68	1,68	1,68	1,68
Spacing	$s_{cr,N}$	[mm]	66	126	96	141	117	177	144	204	195	255	255	315	291	336
Edge distance	$c_{cr,N}$	[mm]	33	63	48	71	59	89	72	102	98	128	128	168	146	168
CONCRETE SPLITTING FAILURE																
Spacing	$s_{cr,N}$	[mm]	100	210	160	240	200	300	250	340	320	430	430	560	500	580
Edge distance	$c_{cr,N}$	[mm]	55	105	80	120	100	150	125	170	160	215	215	280	250	290
Installation safety factor	γ_{inst}	[-]	1,68	1,68	1,2	1,2	1,2	1,0	1,0	1,0	1,0	1,0	1,68	1,68	1,68	1,68
SHEAR LOAD																
STEEL FAILURE																
Characteristic resistance without lever arm	$V^0_{Rk,s}$	[kN]	8,04	8,04	11,7	11,7	18,5	18,5	24,6	24,6	45,4	45,4	61,25	61,25	88,25	88,25
Ductility factor	k_7	[-]	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8

R-XPT-II-A4 STAINLESS STEEL A4 THROUGHBOLT

Size			M6	M6	M8	M8	M10	M10	M12	M12	M16	M16	M20	M20	M24	M24
Characteristic resistance with lever arm	$M_{Rk,s}$	[Nm]	12,62	12,62	22,0	22,0	45,0	45,0	72,0	72,0	180,0	180,0	323,9	323,9	564,5	564,5
Partial safety factor	γ_{MS}	[-]	1,33	1,33	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	2,38	2,38	2,38	2,38
CONCRETE PRY-OUT FAILURE																
Factor	k	[-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	2,0	2,0	2,0	1,0	1,0	1,0	1,0
Installation safety factor	γ_{inst}	[-]	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	2,0	2,0	2,0	2,0
CONCRETE EDGE FAILURE																
Effective length of anchor	ℓ_f	[mm]	22	42	32	47	39	59	48	68	65	85	85	105	97	112
Anchor diameter	d_{nom}	[mm]	6	6	8	8	10	10	12	12	16	16	20	20	24	24
Installation safety factor	γ_{inst}	[-]	1,0	1,0	1,2	1,2	1,2	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0

LOGISTICAL DATA

SKU	Base-sales unit	Unit pack	Bulk pack	Pallet	Single Package - Gross Weight	Bulk Package - Gross Weight	Palette - Gross Weight	Barcode
R-XPTIIA4-06050/10	pcs.	100.0	100.0	16000.0	1.3	1.3	203.0	5906675100081
R-XPTIIA4-06085/25	pcs.	100.0	100.0	16000.0	1.8	1.8	294.6	5906675100104
R-XPTIIA4-08060/10	pcs.	100.0	100.0	16000.0	2.6	2.6	415.8	5906675047232
R-XPTIIA4-08075/10	pcs.	100.0	100.0	16000.0	3.1	3.1	489.6	5906675047249
R-XPTIIA4-08085/20	pcs.	100.0	100.0	16000.0	3.4	3.4	540.8	5906675047256
R-XPTIIA4-08095/30	pcs.	100.0	100.0	12000.0	3.8	3.8	456.0	5906675047263
R-XPTIIA4-08105/40	pcs.	100.0	100.0	12000.0	4.0	4.0	481.3	5906675047270
R-XPTIIA4-08115/50	pcs.	100.0	100.0	12000.0	4.3	4.3	518.8	5906675047287
R-XPTIIA4-10065/5	pcs.	50.0	50.0	8000.0	2.4	2.4	379.8	5906675047294
R-XPTIIA4-10080/20	pcs.	50.0	50.0	8000.0	2.7	2.7	438.4	5906675047300
R-XPTIIA4-10095/15	pcs.	50.0	50.0	8000.0	3.1	3.1	499.7	5906675047317
R-XPTIIA4-10115/35	pcs.	50.0	50.0	6000.0	3.7	3.7	440.3	5906675047324
R-XPTIIA4-10130/50	pcs.	50.0	50.0	8000.0	4.0	4.0	640.0	5906675047331
R-XPTIIA4-10140/60	pcs.	50.0	50.0	8000.0	4.2	4.2	678.7	5906675047348
R-XPTIIA4-12080/5	pcs.	50.0	50.0	8000.0	4.1	4.1	662.4	5906675047355
R-XPTIIA4-12100/5	pcs.	50.0	50.0	8000.0	4.8	4.8	769.1	5906675047362
R-XPTIIA4-12115/20	pcs.	50.0	50.0	6000.0	5.4	5.4	646.8	5906675324548
R-XPTIIA4-12125/30	pcs.	50.0	50.0	6000.0	5.8	5.8	690.5	5906675047379
R-XPTIIA4-12150/55	pcs.	50.0	50.0	4000.0	6.7	6.7	532.2	5906675047386
R-XPTIIA4-12180/85	pcs.	50.0	50.0	4000.0	7.8	7.8	622.1	5906675047393
R-XPTIIA4-16125/5	pcs.	25.0	25.0	4000.0	5.3	5.3	845.6	5906675047409
R-XPTIIA4-16140/20	pcs.	25.0	25.0	4000.0	5.8	5.8	926.9	5906675047416
R-XPTIIA4-16150/30	pcs.	25.0	25.0	4000.0	6.1	6.1	979.8	5906675047430
R-XPTIIA4-16180/60	pcs.	25.0	25.0	3000.0	7.1	7.1	856.1	5906675047447
R-XPTIIA4-20125/5	pcs.	25.0	25.0	3000.0	8.5	8.5	1018.7	5906675100241
R-XPTIIA4-20160/20	pcs.	25.0	25.0	2000.0	10.3	10.3	827.9	5906675100364
R-XPTIIA4-20200/60	pcs.	10.0	10.0	1200.0	5.0	5.0	601.4	5906675100401
R-XPTIIA4-20300/16	pcs.	10.0	10.0	800.0	7.1	7.1	569.6	5906675100418
R-XPTIIA4-24260/10	pcs.	10.0	10.0	1200.0	9.5	9.5	138.9	5906675100432
R-XPTIIA412200105	pcs.	50.0	50.0	4000.0	8.8	8.8	705.6	5906675508672
R-XPTIIA412220/125	pcs.	50.0	50.0	4000.0	8.1	8.1	1624.0	5906675641782
R-XPTIIA412280185	pcs.	50.0	50.0	4000.0	11.5	11.5	920.0	5906675641775
R-XPTIIA416220/100	pcs.	25.0	25.0	3000.0	8.5	8.5	1043.0	5906675424859

R-XPT-II-A4 STAINLESS STEEL A4 THROUGHBOLT

RELATED PRODUCTS

SAFETY	Protective gloves for power tools **R-PGL** 			
DRILLING	Rotary Hammer Drill SDS plus; 850W; 26mm; 2.5J **R-PRH-26850** 	Cordless RawlHammer 18V SDS plus **R-PRH18-S** 	Drill bits Aggressor SDS plus **RT-SDSA** 	Drill bits Rebardrill SDS plus **RT-SDSR** 
CLEANING	Blow Pump **R-BLOWPUMP** 			
ANCHORING	Hammer **RT-HAM-0500** 	Long impact sockets **RT-IS** 	Torque wrench **RT-RW-20-400** 	MECHANICAL ANCHOR SETTING TOOL SDS PLUS **RT-SDSI-MA** 